QuickStart Guide

R8C/Tiny StarterKit Plus

SKP8CMINI, SKP8CMINI-13

RENESAS
Everywhere you imagine.

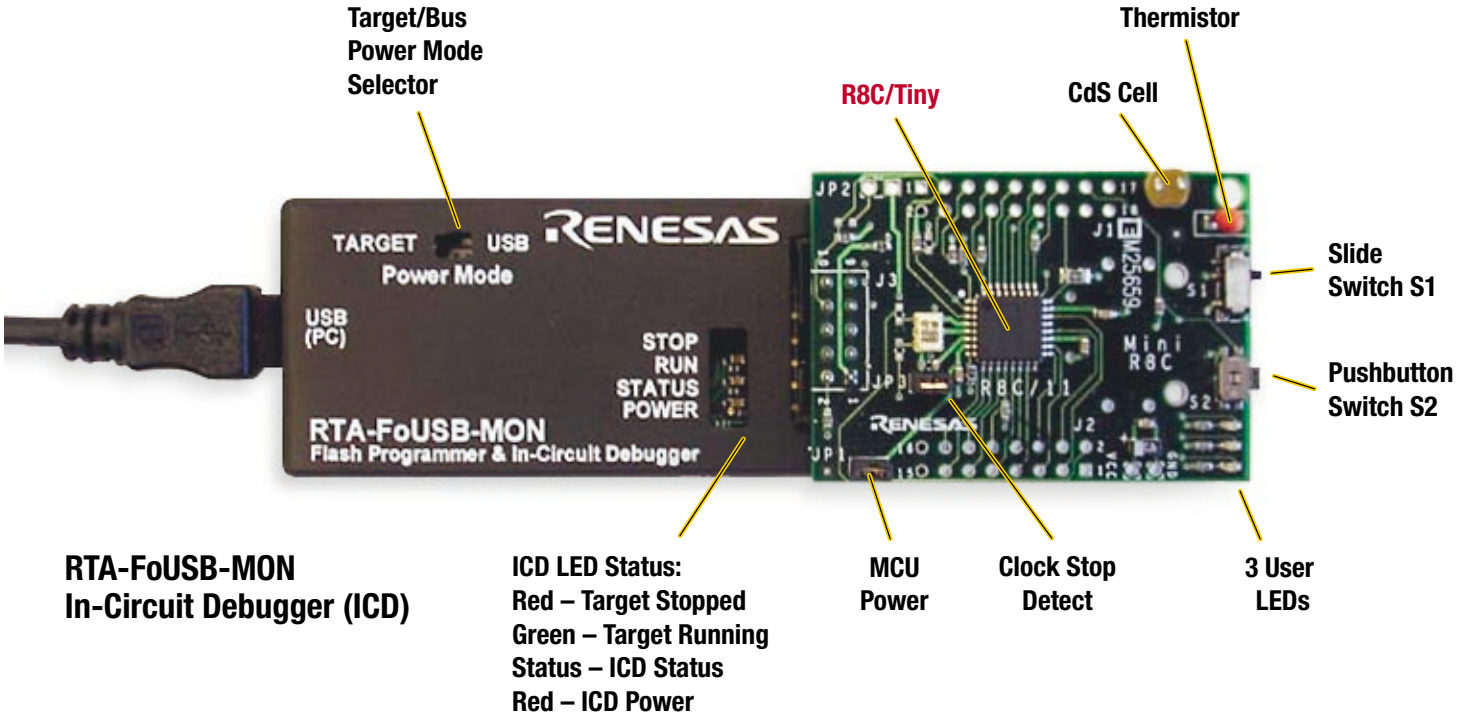

Figure 1. R8C/Tiny SKP

1. Mini R8C StarterKit Plus Software Install

a) Please insert the enclosed CD into your computer's CD-ROM drive. The CD should auto-start, displaying the SKP Picker Install Screen. Follow the directions in the installation windows to install the Renesas tools.

i) If the installation screen does not appear, please browse the CD root folder and double-click on "SKP-Installer.exe".

– Do not plug the In-Circuit Debugger into your USB port until instructed to in Section 2, USB Driver Installation.

– The installation process requires a valid SKP serial number. Locate the label on the PC board or on the side of your box.

– During the installation process, you may be prompted to restart your computer. Do not restart until the SKP installer has completed installation of all of the software items.

– During the SKP install, dialog boxes will appear asking if you would like to install the development tools or not. The development tools will allow you to evaluate the different features of the R8C/Tiny MCU and the software development environment (debugger, compiler, linker, etc…).

2. USB Driver Installation

You need to install the driver for the RTA-FoUSB-MON In-Circuit Debugger (ICD) before you can use it. First, verify that the Target/Bus Power Mode switch is in the USB position.

Next, connect one end of the mini USB cable into the ICD and the other end into your PC's USB port. The red "Power" LED on the ICD will light up and the yellow "Status" LED will blink about 2-3 times per second.

If you are running Windows 98, ME or 2000, no intervention by the user is needed. When the ICD is plugged in, Windows automatically attaches the correct driver for your device and it is ready to use.

If you are running Windows XP, the first time a FoUSB device is plugged into a different USB port on the PC, the Windows XP "Found New Hardware Wizard" window will appear. Select the default option "Install the software automatically (recommended)".

Windows will then begin installing the USB driver. Another screen may appear stating that this driver has not been XP certified by Microsoft because we did not participate in Microsoft XP driver certification. Click the "Continue Anyway" button.

Your driver is now installed. Click Finish to close the wizard.

The driver files (.sys and .inf) are always located under the FoUSB install directory (For example: C:\MTOOL\FoUSB\USB Drivers\) in case you are have trouble with the automatic driver installer.

NOTE: If you have problems installing the drivers or your PC will not recognize the ICD, please see the "Troubleshooting" section of the RTA-FoUSB-MON user's manual for details.

3. Demo Program

The following instructions are specific for the SKP8CMINI kit. Substitute MINI-13 in place of MINI for the SKP8CMINI-13 kit.

The kit ships with a demo program that runs on the board when connected to the ICD (RTA-FoUSB-MON).
As there is no connector polarity on the Mini R8C board, please verify the position of the Mini R8C and RTA-FoUSB-MON as shown in Figure 1.

a) If not already done in step 2, plug one end of the USB cable into the RTA-FoUSB-MON and the other into a USB socket on your PC.

b) Plug the mini R8C board into the TARGET connector of the RTA-FoUSB-MON as shown in Figure 1. The demo should run!

c) The demo has two modes of operation: light and temperature. Switch S1 is used to determine which demo is running.

   i) Light: If S1's actuator is towards pushbutton S2, the light demo is running. The LED's sequential blink speed varies depending on the light level detected using the CdS Cell (the brighter it is, the faster the blink speed becomes and vice versa). Pressing S2 changes the blinking sequence of the LEDs.

   ii) Temperature: If S1's actuator is away from S2, the temperature demo is running. Temperature is sampled and the LEDs are lit based on rising or falling temperature. When the temperature of the Thermistor stays constant the yellow LED is lit. When the temperature increases, the Red LED is lit, and when the temperature decreases, the Green LED is lit.

4. HEW (IDE) Quick-Start

HEW integrates various tools such as the compiler, assembler, debugger, and editor into a common Graphical User Interface. To learn more on how to use HEW, open the HEW manual navigator on your computer (Start > (All) Programs > Renesas High-performance Embedded Workshop > Manual Navigator).

a) Launch HEW from the Start menu (Start > (All) Programs > Renesas High-performance Embedded Workshop > High-performance Embedded Workshop).

b) In the "Welcome!" dialog box:

i) Verify "Create a new project workspace" is selected.

ii) Click <OK>.

c) In the "New Project Workspace" Dialog box:

i) Verify the "CPU family" is set to "M16C".

ii) Select "R8C StarterKit Plus" (Figure 2).

iii) Enter "skptestR8C" for the Workspace Name (the Project Name will auto fill to "skptestR8C").

iv) Click <OK>.

d) On the "R8C StarterKit Plus - Step 1" Window:

i) Click <Next>.

e) On the "R8C StarterKit Plus - Step 2" Window:

i) Select "Demo2".

ii) Click <Finish>.

f) In the "Project generator information" Window:

i) Click <Ok>.

g) Click the "Build" icon, , to compile, assemble and link the project. HEW will look similar to Figure 3.

h) After ensuring there are no errors, proceed to section 5, KD30 Debugger Quick-Start.

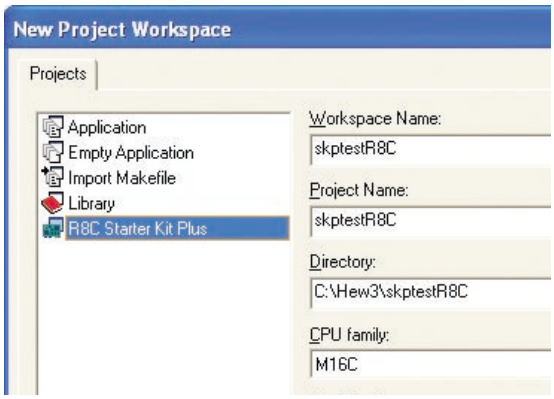

Figure 2. New Project Workspace in HEW

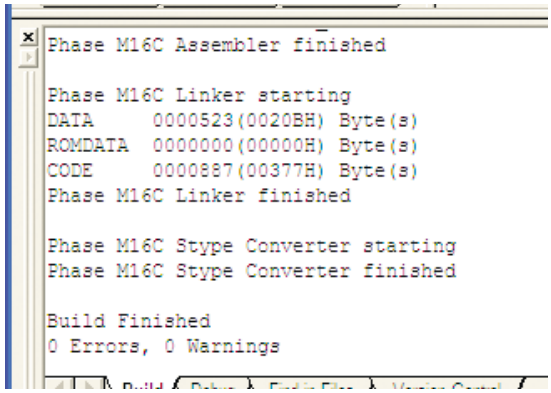

Figure 3. HEW with the skptestR8C project compiled

5. KD30 (Debugger) Quick-Start

a) Connect the R8CMini SKP to the PC (described in detail in steps 3a) and 3b).

b) Click on the debugger icon to launch the KD30 debugger from HEW. The "Init" dialog box should open (Figure 4).

c) The first time you run KD30, you will have to define the target:

i) Click <Refer…>.

ii) Select MCU as follows using Table 1.

Table 1.

SKP8CMINI – R5F21114
SKP8CMINI-13 – R5F21134

– Select the group corresponding to the SKP MCU.

– Select the MCU in the group.

iii) Select USB and click <OK>.

– If you get an error, check connectivity.

– If the message "We should download new firmware" is displayed, click <OK>.

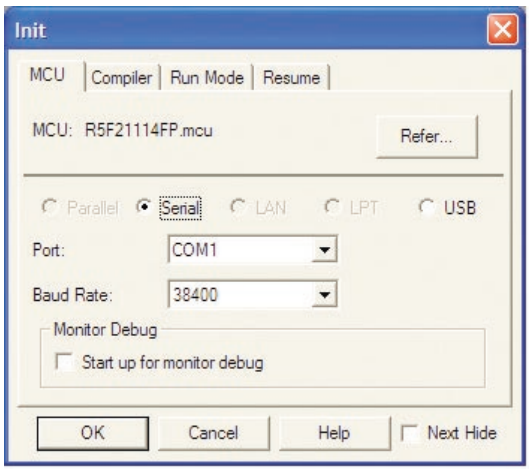

Figure 4. KD30 Init Window

d) After initialization, the KD30 Program Window will appear, and our program, “skptestr8c.x30” is automatically downloaded. The KD30 Program Window should look like Figure 5.

e) Click the <Go> icon  to start the program. This program is similar to the Demo program, but the LEDs blink in a different sequence.

f) Click the Stop icon  to halt the program. If you now click the <Go> icon, the program will resume execution from the point it stopped.

g) Exit KD30 by selecting “File > Exit” from the pull-down menu.

h) Exit HEW by selecting “File > Exit” from the pull-down menu in HEW.

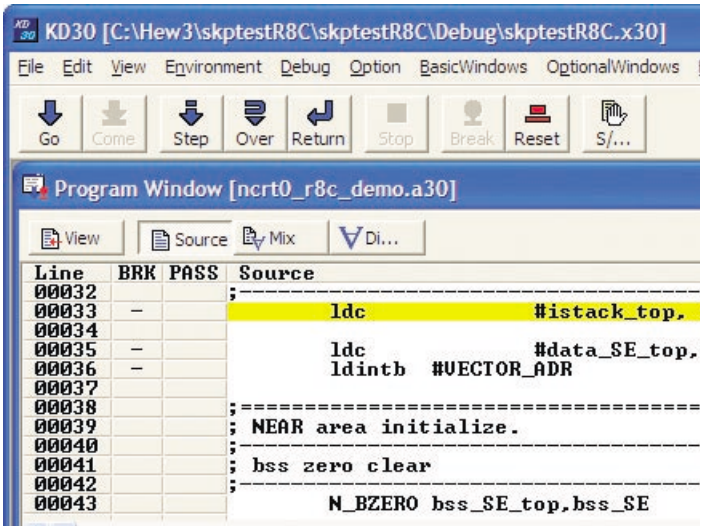

Figure 5. KD30 Program Window after download of skptestR8C

6. Downloading (re-loading) the Demo Program using the Flash-over-USB™ Programmer

When we ran KD30, the original demo program was erased and the SKP board was programmed with a different program. You can use the Flash-over-USB™ Programmer to restore the original demo program.

a) Connect the SKP to the PC. (Described in detail in steps 3a) and 3b)

b) Start the Flash-over-USB™ Programmer (Start > (All) Programs > RENESAS-TOOLS > Flash-over-USB Ver. x.xx > FoUSB Programmer) or double-click on the “FoUSB” icon on your desktop).

c) The first time the FoUSB Programmer is run on your computer:

i) Click on “Select MCU” button.

ii) Select R8C/Tiny series.

iii) Then select the appropriate group and part number as shown in Table 1.

iv) Click <OK>.

v) Click <OK> as requested until you are returned to the Flash-over-USB main menu.

d) Each subsequent time the FoUSB Programmer is run: If the “Unlocked” window appears, click <OK>.

e) Click <Open> when the Flash-Over-USB main menu appears.

f) Browse to the “C:\MTOOL\SKP8CMINI\Sample_Code\Demo\Demo1\Release” folder.

g) Select “Demo1.mot” and click <Open>.

i) When the ID Code dialog box appears, click <OK>.

h) Click <Program> to open the Program Flash window.

i) Click <Program> to download the demo program.

j) When the FoUSB dialog box “Program completed Successfully” appears, click <OK> (Figure 6).

k) Click <Exit> to close Flash-over-USB Programmer and the demo program should start.

For more information on how to use the Flash-over-USB™ Programmer, click on the “Help” button.

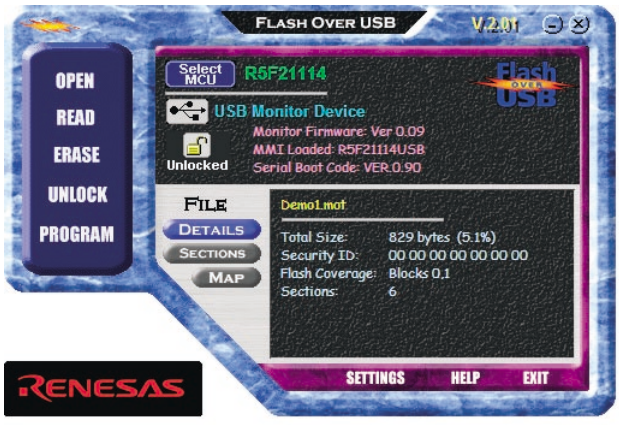

Figure 6. Flash-over-USB™ Programmer Main Menu after loading the Demo Code

7. What's the next step?

After you have completed this quick-start procedure, please review the tutorials that came with the kit. The tutorials will help you understand and jumpstart the software development process using Renesas' development tools.

You can access the tutorials from the Start Menu (Start > (All) Programs > RENESAS-TOOLS > SKP8CMINI > Tutorial 1 – Development Process or Tutorial 2 – Creating a New Project) or from (Start > (All) Programs > RENESAS-TOOLS > SKP8CMINI > Document Description), which also lists other documents that come with the SKP. To check for any updates to the StarterKit Plus, use the (Start > (All) Programs > RENESAS-TOOLS > SKP8CMINI > Check for Kit Updates) shortcut. This will take you to a kit-specific page on the Renesas website which provides links to any available update downloads.

8. HEW3/C-Compiler

The High-performance Embedded Workshop User Manual will show you how HEW3 integrates various tools such as the compiler, assembler, debugger and editor into a common Graphical User Interface. To access the manual on your computer, go to the HEW menu (Start > (All) Programs > Renesas High-performance Embedded Workshop > Manual Navigator).

The NC8C R8C version C-compiler included in the SKP has no time expiration, but has the following limits:

1. The compiler cannot generate load modules that exceed 64 Kbytes.
2. The software comes without support or warranty.
3. See M3T-NC8C Release Note (R8C/Tiny only version) for further details.

If you require additional information or assistance,

please send an email to techsupport.rta@renesas.com.

Renesas Technology America, Inc.
450 Holger Way
San Jose, CA 95134-1368
Phone: 408-382-7500
Fax: 408-382-7501
www.renesas.com